

**REMARKS/ARGUMENTS**

Claims 1-22 are pending in the application. Claim 22 has been added. No new matter has been introduced.

Applicants note with appreciation the allowance of claims 6-21.

Claims 1 and 2 were rejected under 35 U.S.C. §103(a) as being unpatentable over Yanagisawa et al. (U.S. Patent No. 6,259,198) taken with Kim (U.S. Patent No. 6,154,187).

These claim rejections are overcome as follows.

Embodiments in accordance with the present invention relate to a display apparatus for improving gray-scale performance:

"...[T]he present invention is characterized in that, during a select period to select at least one row of a plurality of display devices (electron emission devices), which are laid out to form a matrix, at least two driving voltages with levels different from each other are applied to the selected display devices. The select period is a period during which a select voltage is being applied to the scanning electrode. To put it in detail, in accordance with the present invention, the select period is divided into a plurality of sub-periods and, during each of the sub-periods, a driving voltage with a level different from levels of the driving voltages applied during the other sub-periods is applied to the selected electron emission devices." (Emphasis added; page 4, line 18 to page 5, line 6)

Accordingly, independent claim 1 recites the feature of "a driver capable of applying two or more driving voltages sequentially, which are generated on the basis of an input video signal and have levels independent from each other, during a select period to at least one row of specific electron emission devices selected among said electron emission devices."

The Examiner correctly notes that the Yanagisawa reference does not teach a driver capable of applying two or more driving voltages sequentially. The Examiner has cited the Kim reference in combination with the Yanagisawa reference to overcome the deficiency.

Though the Kim reference describes a flat panel display system including data interfacing sections, the Kim reference does not disclose the feature of at least two driving voltages with levels different from each other being applied to selected display devices. For example, column 2, lines 51-62 of the Kim reference cited by the Examiner states:

"A composite video signal received through an antenna is processed into an analog signal by a video/audio signal processing section, and the analog signal is converted into a digital video signal by an analog-to-digital converting section. This digital video signal is transferred in turn through the data rearranging section, the frame memory section and the data interfacing section to an address electrode driving section of a data stream type which is suitable for contrast-processing of the PDP. For suitable timing-controls to respective sections, the timing controlling section generates timing control signals for respective sections by frequency-dividing a main clock signal."

Here, the Kim reference teaches converting an analog video signal to a digital video signal. This paragraph cited by the Examiner does not explicitly teach at least two driving voltages with levels different from each other being applied to selected display devices. Therefore, Applicants respectfully submit that the combination of the Kim reference and the Yanagisawa reference do not overcome the deficiency of a driver capable of applying two or more driving voltages sequentially.

Furthermore, the combination of the Yanagisawa and Kim reference fails to disclose another feature of the present invention: a select period being divided into a plurality of sub-periods; and during each of the sub-periods, a driving voltage with a level different from levels of the driving voltages applied during the other sub-periods is applied to the selected electron emission devices.

Based upon the failure of the combination of the Yanagisawa and Kim reference to teach or even suggest each of the elements of independent claim 1, it is respectfully asserted that claim 1, as well as claim 2 depending therefrom, is nonobvious and patentable. The Section 103 rejection of the claims is believed to be overcome.

Claims 3-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Yanagisawa et al. taken with Kim and further in view of Huang et al. (U.S. Publication No. 2002/0036602). These claim rejections are overcome as follows.

As stated above, embodiments in accordance with the present invention relate to a display apparatus for improving gray-scale performance. Accordingly, independent claims 3 and 5 recite the features of a select period being divided into a plurality of sub-periods. *See also page 14, lines 17-25 of present specification.*

The Examiner correctly notes that the Yanagisawa reference taken with the Kim reference does not teach a scanning driver for applying to scanning electrodes a select voltage for selecting at least one row of specific electron emission devices selected among electron emission devices during a predetermined select period; and a signal driver for applying to signal electrodes a driving voltage having a level depending on an input video signal for driving the electron emission devices; wherein, the duration of the select period is determined by the output period of the select voltage; the select period is divided into a plurality of sub-periods; and the driving voltage is applied in each of the sub-periods. The Examiner has cited the Huang reference in combination with the Yanagisawa and Kim reference to overcome the deficiency.

Though the Huang reference describes a scanning driver, the Huang reference does not disclose the feature of a select period being divided into a plurality of sub-periods. For example, Figures 6 and 9 of the Huang reference cited by the Examiner show timing diagrams of the control signal on sustaining electrodes and scanning electrodes in a reset period. While the reset period includes timing points  $t_1$ ,  $t_2$ , and  $t_3$ , and multiple driving voltage pulses (e.g., 300, 302, 303, 304), the Huang reference does not teach a select period divided into a plurality of sub-periods as disclosed in the present specification.

Based upon the failure of the combination of the Yanagisawa and Kim reference in view of the Huang reference to teach or even suggest each of the elements of independent claims 3 and 5, it is respectfully asserted that claims 3 and 5, as well as claim 4 depending from claim 3, are nonobvious and patentable. The Section 103 rejection of the claims is believed to be overcome.

Claim 22 has been added to further distinguish the select period as corresponding to at least two horizontal scanning periods. Claim 22 depends from claim 5. Applicants respectfully submit that claim 22 should be allowable.

Appl. No. 10/632,585  
Amdt. sent February 6, 2006  
Reply to Office Action of October 5, 2005

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**CONCLUSION**

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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